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provider parameters to fetch, filter and summarize the search results.

23. (New) The method according to claim 22, wherein the directed search parameters of the directed search are defined in the document using XML tags.

REMARKS

The Office Action of April 23, 2003 has been carefully considered. Reconsideration of this application, as amended, is respectfully requested. Claims 1-17 and 21-23 are pending in this application. Of these, claims 1, 8, and 21 are independent claims.

A response to a restriction requirement faxed February 14, 2003 elected claims 1-17, thereby withdrawing claims 18-20 from consideration in this Application. Applicant therefore retains the right to present claims 18-20 in a divisional application.

This Amendment amends claims 1, 3, 5-8, 10-11, and 13 and adds new claims 21-23. Specifically, the claims were amended as follow:

Claim 1 was amended to incorporate limitations recited in claim 6. Similarly, claims 8 and 21 were amended/added to include similar limitations. Claim 21 is a method of the system in claim 1.

Claims 3 was amended to recite the scheduler that forms part of the meta-document server as shown in Figures 2-4 and described in paragraphs 505 and 512 of Applicant's specification. Similarly, claims 13 and 22 were amended/added to include similar limitations.

Claim 5 was amended to refer to "search criteria" as defined in claim 1.

Claims 6 and 11 were amended to further specify how the meta-document server performs the directed search as discussed in paragraph 512 of Applicant's specification.

Claims 7, 10, and 23 were amended/added to set forth one form in which the directed search parameters may be specified in a document, as shown in Figure 54 and described in paragraph 512 of Applicant's specification.

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In addition, this Amendment amends the specification to correct typographical errors, add reference numbers identified in the drawings but not referred to in the specification, and add patent and application numbers that was not known at the time of filing.

Accordingly, no new matter is believed to be added by these amendments.

1. Response to Rejection Under 35 USC 112

The Office Action on page 2 rejects claim 1 under 35 USC §112 as being indefinite because of the phrase "can be" contained therein. This Amendment amends claim 1 to delete the cited phrase. Accordingly, the rejection of claim 1 under 35 USC §112 is now believed to be overcome.

2. Response to Rejection Under 35 USC 103

Further, the Office Action on page 2 rejects claims 1-17 under 35 USC §103(a) as being unpatentable over Bernstein et al. (U.S. Patent No. 5,297,249, hereinafter referred to as "Bernstein").

Generally, Bernstein discloses a system for authoring documents using link markers (e.g., hyperlinks specified in push-buttons, frames, etc.). These link markers allow hypermedia navigation from link to object (i.e., unidirectional links) or link to link (i.e., bidirectional links). In addition, Bernstein discloses a keyword-based searching method for identifying existing link markers from a database of pre-conceived link markers. (See Bernstein: column 2, lines 32-55; column 8, line 66 through column 9, line 28; Figure 25).

Unlike Bernstein which provides the specification of hyperlinks in documents, Applicant's claimed invention concerns a system, and method therefor, for authoring documents while specifying a directed search having parameters that define a service request. In addition, the directed search once carried out by, for example, a meta-document server, the search results of the directed search are stored in the document as specified in the parameters of the service request. (See Applicant's specification paragraphs 502-513 and Figures 4, 52, and 53.)

In rejecting claim 1, the Office Action asserts on page 4, lines 5-10, that

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Applicant's claimed invention in claim 1 is obvious in view of Bernstein because "Bernstein is a hypermedia/hypertext linking service that provides link marker to a document (33, FIG. 3, FIG. 4 A-B, FIG. 5, FIG. 22, col. 8, lines 50-67 to col. 9, lines 1-67 to col. 10, lines 1-51), which teaches that after the hypermedia/hypertext linking system searches related information (linked object), the system actually links (inserts) the linked object on the document, see (col. 9, lines 1-28)".

Applicant respectfully disagrees. Instead, Bernstein in the cited sections describes a system for defining hyperlink markers and for searching for hyperlink markers defined in a Link Manager Service (LMS). More specifically, LMS maintains via a database various links specified by users (see column 8, lines 56-58), which links may be unidirectional or bidirectional (see column 8, line 66 through column 9, line 28). In addition, LMS provides the ability to perform keyword searching of a hypermedia database (see Figs. 25 and 32, column 28 line 34 through column 29, line 4).

However, Applicant submits that nowhere in the sections of Bernstein cited in the Office Action does Bernstein disclose or suggest as claimed by Applicant in independent claims 1, 8, and 21, a system, or method therefor, for: (a) specifying a directed search; (b) inserting the directed search in a document as a document service request; (c) performing the directed search specified in the document service request; and (d) inserting the search results in the document according to the location and form parameters specified in the directed search.

By way of example, Applicant illustrates a directed search that is to be specified as a document service request 106 in Figure 52 for document content 102 of a meta-document that is being authored using a text editor 4314. As shown in Figure 4, the scheduler 204 identifies and performs at a specified interval the document service request embodying a directed search. The results of the directed search can be inserted in the document content as links, content, or metadata relative to a current selection (see 5306 and 5314 in Figure 53).

In summary unlike Bernstein which discloses a system for creating, managing, and searching for link markers, Applicant's claimed invention provides a system, and method therefor, for specifying a directed search of a document by allowing a user to

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define a parameterized specification of a search that identify where and how the results of the search are to be inserted in the document.

Accordingly, Applicant respectfully submits that independent claims 1, 8, and 21 are patentably distinguishable over Bernstein. Insofar as claims 2-7, 9-17, and 21-23 are concerned, these claims depend from one of now presumably allowable independent claims 1, 8, and 21 and are also believed to be in allowable condition.

3. Fee Authorization And Extension Of Time

No additional fee is believed to be required for this Amendment. However, the undersigned Xerox Corporation attorney hereby authorizes the charging of any necessary fees, other than the issue fee, to Xerox Corporation Deposit Account No. 24-0025. This also constitutes a request for any needed extension of time and authorization to charge all fees therefor to Xerox Corporation Deposit Account No. 24-0025.

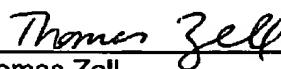
4. Application's Publication

Applicant mailed a new set of drawings to the Chief Draftsperson in substitution for those drawings on file on April 11, 2003 because the publication of drawings in Applicant specification did not reproduce well in US 2003-0061200 A1.

5. Conclusion

In view of the foregoing remarks, reconsideration of this application and allowance thereof are earnestly solicited. In the event the Examiner considers a personal contact advantageous to the disposition of this case, the Examiner is hereby requested to call Attorney for Applicant(s), Thomas Zell.

Respectfully submitted,



Thomas Zell
Attorney for Applicant(s)
Registration No. 37,481
Telephone: 650-812-4282

Grenoble, France
Date: July 17, 2003

Original

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7/17/03

APPENDIX

Marked Up Amended Paragraphs Of Specification:

This section of the Appendix sets forth a marked up version of the prior pending paragraphs(s) in the specification other than the claims with additions shown with underlining (e.g., new text) and deletions shown with a strikethrough (e.g., ~~delete text~~) under 37 C.F.R. 1.121(b)(1)(III).

1. Pending *Cross Reference To Related Applications* of the specification:

Priority is claimed from U.S. Provisional Application No. 60/311,857, filed August 13, 2001. Cross-reference is made to U.S. Patent Application Serial No. 09/543,962, entitled "Meta-Document And Method Of Managing", and U.S. Patent Application Serial No. 09/928,619 entitled "Fuzzy Text Categorizer", which are both hereby incorporated herein by reference. In addition, cross-reference is made to the following U.S. Patent Applications that (a) are concurrently filed with this patent application, (b) are assigned to the same assignee as this patent application, (c) are incorporated in this patent application by reference, and (d) claim priority to U.S. Provisional Patent Application Serial No. 60/311,857, filed August 13, 2001: U.S. Patent Application Serial No. 09/683,238, entitled "Meta-Document Management System With Personality Identifiers"; U.S. Patent Application Serial No. 09/683,239, entitled "Meta-Document Management System With Document Identifiers"; U.S. Patent Application Serial No. 09/683,240, entitled "Meta-Document Management System With Transit Triggered Enrichment"; U.S. Patent Application Serial No. 09/683,235, entitled "System For Automatically Generating Queries"; U.S. Patent Application Serial No. 09/683,241, entitled "System For Propagating Enrichment Between Documents"; U.S. Patent Application Serial No. 09/683,242, entitled "Document-Centric System With Auto-Completion And Auto-Correction"; U.S. Patent Application Serial No. 09/683,236, entitled "Meta-Document Management System With User Definable Personalities".

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2. Pending paragraph number 442:

This section describes a mechanism that uses an information space surrounding a document to provide an improved (e.g., more accurate and more stylish) document-centric auto-completion system and auto-correction system that can be used during content creation. Document auto-completion saves a user from having to retype text (and other document content such as graphics) and related markup such as as hyperlinks, bibliographic entries etc., by providing suggestions of words that have been used previously in a contextually similar manner. Document auto-correction provides a textual correction system that dynamically updates the information space as corrections are made or accepted.

3. Pending paragraph number 460:

Subsequently at 4506, the module 4406 waits for a signal from text editor 4314 that document content 4203 has been added and/or edited. At 4508, the information space is updated based on the added and/or edited document content. At 4510, the updated information space (i.e., added and/or edited document content and enrichment associated therewith) is processed for entities that could potentially be used for auto-completion. At 4512, if extracted entities are deemed to be appropriate for auto-completion, then they are indexed and inserted into the database of entities 4214; otherwise, or upon completion of 4512, the service 4406 waits for additional signals from the editor 4314.

4. Pending paragraph number 467:

Also, other factors such as the length of entities, highlighting information (i.e. are headings, bold, hyperlinked, etc.), markup information (such as hyperlinks, footnotes etc.), location of the entity in a document, its frequency in a document (or within a corpus) could be used in any combination to determine the utility of inserting the entity into the entity completion database. Those entities with a utility above a certain

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threshold are selected and inserted into the entity database. In one embodiment, the utility of an entity is determined using a weighted linear combination of factors as set forth below:

$$\begin{aligned}
 \text{Utility}(\text{entity}) = & \sum_{\text{factors}} \text{weight}_{\text{factor}}(\text{factor}) = \\
 & \text{weight}_{\text{bold}}(\text{bolded}(\text{true} = 1; \text{false} = 0)) + \\
 & \text{weight}_{\text{italic}}(\text{italic}(\text{true} = 1; \text{false} = 0)) + \\
 & \vdots \\
 & \text{weight}_{\text{uppercase}}(\text{uppercase}(\text{true} = 1; \text{false} = 0)) + \\
 & \text{weight}_{\text{location}} \left(1 - \frac{\text{location of word}}{\text{document length}} \right) + \\
 & \text{weight}_{\text{frequency}} \left(\frac{\text{frequency of word occurring in document}}{\text{highest frequency of any word in document}} \right) + \\
 & \text{weight}_{\text{corpus}} \left(\frac{\text{frequency of word occurring in corpus}}{\text{highest frequency of any word in corpus}} \right)
 \end{aligned}$$

5. Pending paragraph number 472:

Subsequently, a query is formulated at 4606 using the extracted context information and string fragment. In one embodiment, the query can simply be the string fragment. In alternative embodiment, the query can be expanded using various contextual information that may lead to more accurate suggestions for completion. For example, the auto-completion system could process the sentence of which the string fragment is a member using linguistic processing tools such as XeLDA (Xerox Linguistic Development Architecture) described in U.S. Patent Application—Serial—No. 6,321,372 09/221,232, which is incorporated herein by reference.

6. Pending paragraph number 475:

At 4608, the formulated query is submitted to the information retrieval system 4308 in the auto-completion module 4302. In operation, the information retrieval system 4308 locates matches subject to the constraints specified in the query using known

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matching techniques. The matched items are retrieved and ranked based on their level of appropriateness for completion (i.e., how well they satisfy the query constraints and possibly additional constraints such how near each matched item is to a previously completed item) at 46124610. The top ranked match that contains the same (or similar) initial characters typed by the user is displayed for user acceptance at 46144612. In an embodiment, the suggested completion is displayed in a fashion that is distinct from the text that the user has typed. For example, if the user's text is shown in black, the completion will be shown in gray.

7. Pending paragraph number **485**:

After a word or phrase is accepted by a user (e.g., simply by clicking with a pointer thereon) in the user in popup window 4708 as indicated by arrow 47164714, then feedback is provided to the user in the window 4704, as indicated by arrow 4716, that the word match was selected and copied into the target document with appropriate formatting and/or enrichment (e.g., links to other content) as shown at 4718. If the user decides to stop the auto-completion process, then the auto-completion process is terminated. Otherwise, additional word(s) may be offered to the user for user acceptance by selecting RE-RANK at 4720. The auto-completion process terminates if the user decides to do so by selecting 4722 or automatically if no new words are offered to the user (e.g., it loops back to the first word matched).

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Marked Up Amended Claims:

This section of the Appendix sets forth a marked up version of the prior pending claim(s) with additions shown with underlining (e.g., new text) and deletions shown with a strikethrough (e.g., ~~delete text~~) under 37 C.F.R. 1.121(c)(1)(ii).

Claims 1, 3, 5-8, 10-11, and 13 were amended as follows:

1. (Once Amended) A system for enriching a document, comprising:

a document editor for authoring the document; ~~and~~

a directed search service for (a) receiving input specifying a directed search while the document is authored with the document editor and (b) inserting the directed search in the document as a document service request; the directed search service including search criteria and result parameters ~~that may be specified by a user~~; the result parameters including information provider parameters, location parameters and form parameters; the information provider parameters identifying one or more information providers to perform the directed search and provide search results; the location parameters identifying where in the document the search results are to be inserted; and the form parameters specifying a form in which the search results are to be inserted into the document; and

a meta-document server for (i) performing the directed search specified in the document service request by querying the information providers specified in the result parameters of the directed search with the search criteria specified in the directed search and (ii) inserting the search results in the document using the location parameters and form parameters that identify the location and the form to insert the search results in the document ~~wherein the directed search service inserts the directed search in the document.~~

3. (Once Amended) The system according to claim 1, wherein one form parameter specifies how frequently the directed search is to be performed wherein the

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meta-document server further comprises a scheduler for selecting the document service request at the specified frequency and for initiating and managing communication with the information providers specified in the result parameters of the directed search.

5. (Once Amended) The system according to claim 4, wherein the search parameters criteria includes means for specifying information providers according to a user defined criteria.

6. (Once Amended) The system according to claim 1, wherein the meta-document server performs the directed search using the search criteria and the information provider parameters by fetching, filtering and summarizing the search results~~further comprising a meta-document server for performing the directed search and providing the search results by querying the information providers using the search criteria and inserting the search results in the document.~~

7. (Once Amended) The system according to claim 6¹, wherein the parameters of the directed search specified in the document service request are defined in the document using XML tags~~search results are integrated in the document while being authored with the document editor.~~

8. (Once Amended) A system for enriching a document, comprising:
a user interface for specifying a directed search while authoring a document,
said user interface further comprising:

means for receiving input specifying search criteria of the directed search;
and

means for receiving input specifying result parameters; the result parameters including information provider parameters, location parameters and form parameters; the information provider parameters identifying one or more information providers to perform the directed search and provide search results; the location parameters identifying where in the document the search results are to be inserted; and the form parameters specifying a form in which the search results are to be inserted into the document; and

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means for inserting the directed search in the document as a document service request; and

a meta-document server communicating with the user interface for carrying out the directed search specified in the document service by (i) querying the information providers specified in the result parameters of the directed search with the search criteria specified in the directed search and (ii) inserting the search results in the document using the location parameters and form parameters that identify the location and the form to insert the search results in the document.

10. (Once Amended) The system according to claim 98, wherein the directed search parameters of the directed search are defined in the document using XML tags wherein one form parameter specifies how frequently the directed search is to be performed.

11. (Once Amended) The system according to claim 810, wherein the meta-document server performs the directed search by fetching, filtering, and summarizing the search results further comprising means for invoking the user interface from a document editor.

13. (Once Amended) The system according to claim 12, wherein the form parameters specify how frequently the directed search is to be performed, and wherein the meta-document server further comprises a scheduler for selecting the document service request at the specified frequency and for initiating and managing communication with the information providers specified in the result parameters of the directed search the search parameters includes means for specifying information providers according to a user defined criteria.